Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C.

In the Matter of	)	
	)	
Revision of the Commission's Rules	)	CC Docket No. 94-102
To Ensure Compatibility with	)	RM-8143
Enhanced 911 Emergency	)	
Calling Systems	)	
	)	
Request for Waiver of	)	DA 98-2323
Section 20.18(c) of the	)	
Commission's Rules	)	

To: The Wireless Telecommunications Bureau

REQUEST FOR RULE WAIVER

Omnipoint Corporation ("Omnipoint"), on behalf of its broadband PCS licensee affiliates[1] and pursuant to Section 1.3 of the Commission's rules, files this request for a waiver of Section 20.18(c) of the Commission's Rules, consistent with the Bureau's November 13 Order[2] in the above-captioned proceeding. Omnipoint anticipates that it will not be possible to enable use of TTY devices over Omnipoint's digital wireless systems by the implementation deadline of December 31, 1998. As described more fully below, Omnipoint intends to continue to work diligently to deploy and upgrade its network to enable use of TTY devices. Furthermore,

---

1 Attached hereto is a list of Omnipoint-affiliated licenses.

2 Order, DA 98-2323, ¶¶ 10-12 (rel. Nov. 13, 1998) (discussing procedures and guidance for carriers that seek a waiver of the TTY requirements of the Commission's wireless E911 obligations, 47 C.F.R. § 20.18(c)).

Omnipoint is duly considering the concerns of consumers as it continues its evaluation of potential solutions. Therefore, Omnipoint respectfully submits that the waiver requested herein would address the special circumstances surrounding compliance with the wireless E911 TTY obligations and would serve the public interest.

Summary and Discussion

Section 1.3 of the Commission's rules provides for waiver of Commission rules "for good cause shown." 47 C.F.R. § 1.3. As the Commission and courts have often explained, rule waivers are properly granted when the facts and circumstances, pled with particularity, demonstrate that special circumstances warrant a deviation from the general rule and such a principled deviation would otherwise serve the public interest.[3]

In this case, Omnipoint anticipates that it will be unable to comply with Section 20.18(c) of the Commission's rules by the December 31, 1998 deadline because of unresolved technical limitations. In particular, due to Omnipoint's entirely digital network technology, the transmission of analog Baudot modem tones presents unique technical obstacles, which are compounded when seeking to ensrue that any solution yields a character error rate ("CER") of less than one percent. As described in detail in Omnipoint's October 30, 1998 filing,[4] digital networks do not directly transmit analog voice signals and are not desigend to transmit analog data signals using traditional analog mondulation/demodulation ("modem") techniques. Rather,

---

3 *In the Matter of Application for Review of BellSouth Wireless, Inc.*, Memorandum Opinion and Order, 12 FCC Rcd. 14031, 14038 (1997) (Request for waiver of Part 20 of the Commission's rules is properly considered under Section 1.3 analysis, which follows traditional waiver standard articulated in Northeast Cellular and WAIT Radio); Northeast Cellular Tel. Co. v. FCC, 897 F.2d 1164, 1166 (D.C. Cir. 1990) (waiver of FCC rules is proper where "special circumstance warrant a deviation from the general rule and such deviation will serve the public interest"); WAIT Radio v. FCC, 418 F.2d 1153 (D.C. Cir. 1969).

4 Attached hereto as Exhibit 2.

digital systems use a voice encoder ("vocoder") embedded in the handset to transform analog signals into digital signals via a process referred to as voice coding. In simple terms, the vocoder approximates the human voice through a complex mathematical model of speech. Instead of transmitting specific voltage and frequency information, which would approximate the analog voice signal, the vocoder sends complex mathematical coefficients used to reconstruct the original speech.

A problem occurs when analog data (non-voice) signals are transmitted through a vocoder. When analog modem signals are sent through the vocoder, the voice-specific coefficients only imperfectly recognize modem tones, resulting in distortions and errors not apparent with voice signals transmitted over landline digital networks or analog modem signals transmitted over analog cellular networks. The following analogy may better illuminate the problem with sending modem tones over a vocoder-based digital radio network. Consider an IndetiKit used by police departments to produce a likeness of a suspect, where the operator selects noses, hairlines, eyebrows, etc. to form a likeness. If each of these individual strips were numbered, it would be possible to transmit an IdentiKit composite likeness very compactly. Thus, a good likeness of any human face could be converted with just a string of a few dozen digits. But, suppose the IdentiKit is used to develop a likeness of a golden retriever. No combination of human-based noses, eyebrow, hairlines, etc. will accurately produce a likeness of the golden retriever.

There is a clear trade-off of efficiency versus generality in this example, and in the design of vocoders. The wider the range of information that is to be transmitted, the less efficient will be the compression techniques. Mobile radio vocoders have been highly optimized to model and reproduce only human speech. Reproduction of other sounds has been given less priority. This degree of optimization has been necessary in order to meet the capacity and cost goals necessary for mobile radio communications, in light of the difficulties imposed by mobile radio channels. The vocoder approach must be contrasted with the land telephony approach, which permits

essentially perfect reproduction of any signal meeting the bandwidth requirements, including human speech and modem tones. However, the land telephony approach requires 64 kb/s of information be transmitted, while the GSM vocoder only uses 13 kb/s, with a 6.5 kb/s vocoder under development. Due to the unique characteristics of digital handsets, special circumstances exist for a deviation from the rule until such time as Omnipoint is able to feasibly deploy/upgrade its systems to meet the E911 TTY requirements.

Omnipoint notes that technical infeasibility of carrier compliance with FCC rules may demonstrate the requisite "special circumstances," even where such rules are intended to protect consumer interests.[5] As the Common Carrier Bureau recently noted, "[c]onsumers are better served by giving carriers additional time, when justified, to implement a working system . . . ."[6] In the same way, the public interest is better served by granting the requested waiver and providing Omnipoint additional time to deploy working solutions for TTY users.

In accordance with the November 19 Order, Omnipoint submits the following information in support of this waiver request, which further demonstrate Omnipoint's ongoing and good faith efforts at compliance.

1. What steps the carrier is taking or intends to take to provide users of TTY devices with capability to operate such devices in conjunction with digital wireless phones.

---

5 *In the Matter of Billed Party Preference for InterLATA 0+ Calls*, Order, 13 FCC Rcd. 12576, ¶ 4 (CCB 1998) (waiver of certain rate disclosure requirements for requesting operator service providers was justified where "technical problems . . . will delay implementation of the Commission's rules"). Similarly, the Wireless Telecommunications Bureau has granted limited rule waivers where the underlying factual circumstances were beyond the requesting party's control. See *WirelessCo, L.P., PhillieCo, L.P., and Sprint Corporation*, Order, 10 FCC Rcd. 11111, 11114 (Chief, WTB 1995) (waiver of PCS rule granted where it would further the public interest of the rule, and involved circumstances beyond the parties' control); *Pacific Telesis Group and PacTel Corporation*, Order, 10 FCC Rcd. 168, 170 (1994) (same).

6 Id.

Omnipoint is actively pursuing and evaluating several different approaches that have been identified identified. Outlined below is a description of each of these possible TTY-compatibility solutions.

A. Nokia 9000 iL/TRS. Omnipoint has demonstrated that its network can transmit text messages via the Nokia 9000 iL, a digital communicator configured with a large display screen and a QWERTY keyboard. By selecting the Nokia 9000 iL's dial-up data mode, a user can dial a toll-free 800 number (or, in Bell Atlantic regions, a 711 number) to reach a telecommunications relay service ("TRS") provider. The TRS will automatically route the call to an ASCII TTY device, where a trained communications assistant ("CA") receives text messages. These CAs are trained to contact any party with whom the caller wishes to communicate -- whether another TTY (Baudot or ASCII) user, a hearing person, or a public safety answering point ("PSAP") -- and to transfer messages between the parties.

There are several significant benefits to this solution: it is currently available; it provides a CER of less than 1 percent; and it offers the flexibility to establish communications with both analog and digital TTY devices. Omnipoint has identified, and advised the manufacture of, two possible areas for improvement of this currently-available solution, a small screen print (font) size and a "hard" carriage return. The manufacturer has agreed to research the feasibility of modifying the communicator to improve these areas. Pending such modifications, Omnipoint intends to conduct field tests and obtain input from consumer groups.

B. Cable Solution. Omnipoint has asked two handset manufacturers, Ericsson and Motorola, to develop and provide a cable connection for select handsets that operate on Omnipoint's 1900 MHz GSM network. Once developed, this solution will enable the speech and hearing impaired to connect TTY devices, either Baudot or ASCII, to certain standard handset models.This possible solution would provide mobile telephony to the speech and hearing impaired by enabling them to connect TTY devices, either Baudot or ASCII, to certain PCS handset models.

Motorola has not yet responded, but Ericsson has stated that it will provide such a cable to Omnipoint on December 7, 1998. Upon receipt of this cable, Omnipoint's network engineers will conduct field tests to evaluate the functionality of this approach. Pending the outcome of those tests, and in particular, the CER, Omnipoint will obtain input from consumer groups. In parallel, Omnipoint continues to participate in industry-wide testing efforts designed to measure and compare CER between analog AMPS and digital GSM networks. The North American Interest Group ("NAIG") of the GSM MoU Association plans to conduct tests in Cetecom of Fremont, California on January 23, 1999.

C. ITCenter Interworking Function (IWF). In October, Omnipoint met with ITCenter, a Swedish telecommunications equipment manufacturer, to assess the functionality of their proprietary network server and software. If ITCenter's Interworking Function ("IWF") device is appropriate for installation on Omnipoint's network, and appropriate software is installed in a Nokia 9000 iL handset, the speech and hearing impaired will be able to communicate directly with both Baudot and ASCII TTY devices via a direct dial-up data connection. In effect, the ITCenter solution converts the Nokia 9000 iL into a TTY emulator, capable of two-way direct communications with other TTY users. This solution is subject to cost considerations and testing. ITCenter's development must include conversion from European to North American telecommunications and regulatory standards.

2. When the carrier intends to make this capability available to TTY users. This information should include well-documented timetables and milestones from the carrier regarding implementation of this capability.

A. Nokia 9000 iL/TRS. As described above, this solution currently is available, althought the vendor could not provide the timeframe for implementation of the enhancements outlined above. Omnipoint continues to work with the vendor and anticipates conducting field tests during the first quarter of 1999.

B. Cable Solution. Omnipoint expects to receive a prototype of the Ericsson cable on December 7 and plans to conduct field tests during the first quarter of 1999.

C. ITCenter Interworking Function ("IWF"). Omnipoint is in the initial stages of evaluating this solution. As such, it is uncertain of the timeframe in which this solution may be available.

3. What reasonable steps the carrier will take to address the consumer concerns referenced in the September Order.

Omnipoint, like any other operator, depends upon equipment manufacturers to develop and supply compatible equipment. Omnipoint's ability to influence the outcome or expedite the development and availability is therefore limited.

Furthermore, Omnipoint does not agree that the thirteen points raised by the consumer representative, and referenced by the Commission, necessarily define the acceptable perimeters for a satisfactory solution for Omnipoint's technology. Nevertheless, Omnipoint has today a solution that meets the vast majority of the requirements, and continues to explore alternative solutions. Omnipoint addresses each of these criteria below.

Customer Criteria	**Nokia 9000 iL/TRS**	**Cable**	**IWF**
1) CER<1%	theoretically, yes	to be determined	theoretically, yes
2) Ability to visually monitor call progress	yes	yes	yes
3) Visual indication of when call is ended	yes	yes	yes
4) Volume control	yes	yes	yes
5) Tactile ring signal	vibration device may be purchased as an accessory	yes	vibration device may be purchased as a handset accessory

Customer Criteria	Nokia 9000 iL/TRS	Cable	IWF
6) Ability to transmit TTY tones independent of the condition of the receiving modem (permits Baudot signaling by pressing a key so that a hearing person knows that the incoming cal is from a TTY device)	No	No	Possibly in a future release; somewhat depending on modifications to the GSM standards as well
7) Need to retrofit landline TTY device	Not when used with TRS service	No	Not applicable
8) Need to modify wireless user's TTY or purchase buy new TTY or use portable data terminal	requires use of a Nokia 9000 iL digital data communicator in conjunction with TRS	requires purchase of a cable and possibly an adapter	Requires Nokia 9000 iL digital data communicator
9) VCO/HCO support	No	Yes	not available
10) No reduction in Baudot through put	unknown	No reduction	Unknown

Customer Criteria	Nokia 9000 iL/TRS	Cable	IWF
11) Pass through of ALI/ANI, where available	theoretically possible; would require some network/software changes	Yes	Yes
12) Ability to communicate with different generations of TTY devices	in theory, yes, since TRS providers are required to receive/transmit calls to various TTY devices in service	Transparent – depends on other party equipment[7]	The IWF supports a variety of standards, including Baudot and ASCII up to 9600 b/s
13) Meets drive conditions similar to AMPS	Not-applicable connection is via data keyboard on the 9000iL	not yet tested	Not-applicable connection is via data keyboard on the 9000iL

7 Assumes that low speed data is used, 45.45 baud for Baudot or 110 baud for ASCII. Successful operation with higher data rates is highly unlikely.

Conclusion

Omnipoint will continue to deploy and upgrade its systems in a diligent manner to achieve compliance, and will keep the Commission informed of its progress. However, because compliance by December 31, 1998 is not feasible, Omnipoint respectfully requests a waiver of the Section 20.18(c) obligations until such time as it can comply with those obligations.

Respectfully submitted,

OMNIPOINT CORPORATION

By: Teresa S. Werner

Mark J. O'Connor
Teresa S. Werner

Piper & Marbury L.L.P.
1200 19th Street, N.W.
Seventh Floor
Washington, D.C. 20036
(202) 861-3900

Its Attorneys

December 4, 1998